

# Combat Casualty Management Issues in Future Operational Environments

Gary E. Horne • Neil B. Carey • Cori R. Rattelman

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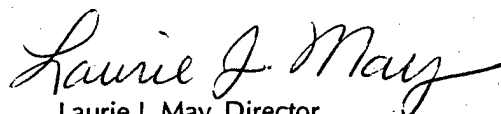
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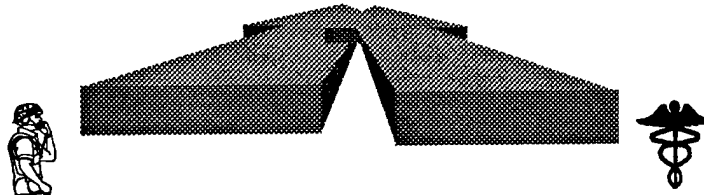
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## **Combat Casualty Management Issues in Future Operational Environments**



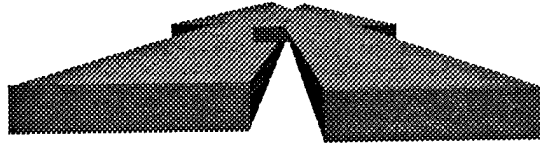
**Gary Horne  
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September 1995**

This annotated briefing presents the findings of the quick-response project, Combat Casualty Management Issues in Future Operational Environments. This project is sponsored by the Deputy for Marine Corps Medical Matters (N093M). It is an outgrowth of Kernel Blitz '95, an amphibious exercise that used mostly traditional concepts of operation and had a relatively large amount of medical play. Under this traditional amphibious scenario, lessons were learned that should lead to improved medical support. But in the future, medical support for Naval Expeditionary Forces will face different and perhaps more difficult challenges.

Warfighters are looking to changes in ship-to-shore assets in the future; the LCAC (landing craft air cushion) is already here and the Advanced Amphibious Assault Vehicle and V-22 Osprey tilt-rotor aircraft are expected soon. Concurrently, warfighters have developed new concepts for fighting, and these assets will be more properly referred to as ship-to-objective assets. The implementation of these new concepts will have vast implications for the Navy/Marine Corps team in the management of combat casualties in the future.

## Looking to the Future



***The ultimate question: How will we manage  
combat casualties in future  
operational environments?***

***This quick-response project identifies issues  
associated with this question that require  
follow-up work, with focus on Operational  
Maneuver From the Sea (OMFTS) concept.***

As the warfighting and medical communities both look to the future, the overall question is how the Navy/Marine Corps team will manage combat casualties. Ideally, the warfighting and medical communities would move to answer this question together with shared understanding that translates into the potential for better care for combat casualties and a more efficient fighting force.

Identifying the issues that arise as we integrate new advancements in technology and warfighting concepts into the area of combat casualty management in the future is a needed step in moving to that final outcome. The objective of this project is to identify the issues, especially those that arise from the Operational Maneuver From the Sea (OMFTS) concept. The way we are planning to fight will be different in the future, so we must consider how medical support must change in step with the warfighters.

Put another way, the objective of this project is not to come up with the answers, but to come up with the questions that must be answered in the area of combat casualty management in the future. The answers will require follow-up work from a multitude of people from many places spending a great deal of time and effort considering the details.

## Sources

- MCCDC Concepts
- Department of Navy BUMED
- MCCDC Combat Medical
- Naval Doctrine Command
- USMC Installations & Logistics
- Army Medical Plans & Ops
- Army Medical Center Concepts
- J-4 Medical Readiness Division
- OASD Health Affairs Readiness
- I MEF, II MEF, PHIBGRU 2
- CNA

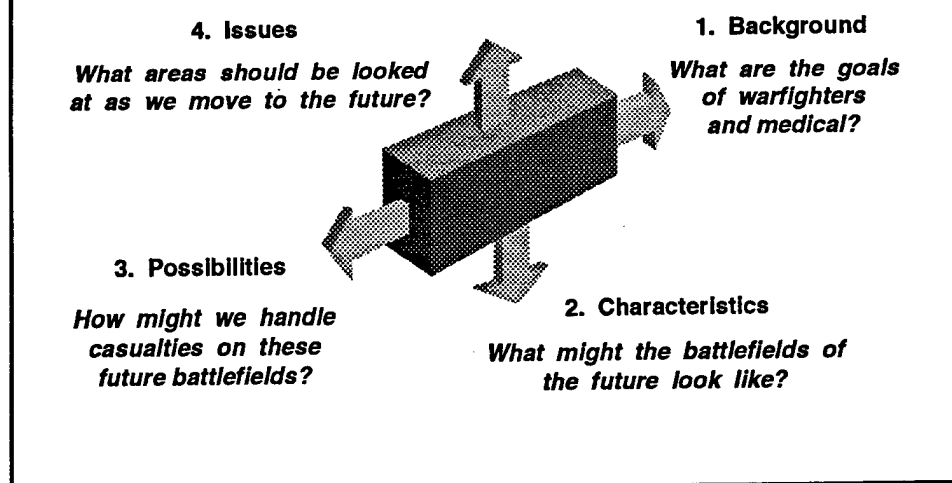
*Information was collected from participants through discussions, structured interviews, and roundtable working sessions.*

We collected information from a variety of sources during this study. A great deal of information is contained in overarching publications, such as *Forward...From the Sea*, current doctrinal publications on operational health service support, and concept papers on OMFTS. In looking to the future, however, our most important sources of information were the people we met.

For six weeks, we collected information from participants through discussions, structured interviews, and roundtable working sessions. In such a short period of time, we couldn't talk to everyone with valuable perspectives on the topic, nor could we go deeper into the issues in follow-up sessions with those we did meet. We did attempt to gather each person's vision of the future and what possibilities they saw for combat casualty care in the future.

We started by collecting information from Marines immersed in the OMFTS concept. We then focused on medical personnel, starting with naval personnel. We also talked with people familiar with combat medical issues in the Army and at the DoD level. It was also important for us to get the perspective of those in operational commands, so we talked with medical personnel from I MEF, II MEF, and PHIBGRU 2. At CNA, we first tapped the knowledge of our medical studies team, especially those involved in exercise analysis. We also brought analysts into the process who have been involved in Project Culebra (an OMFTS analysis), naval communications studies, logistics studies, and amphibious operations research.

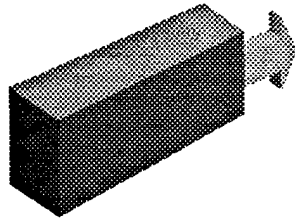
## Thinking Outside the Box



We asked our participants to “think outside the box” because we wanted to consider all of the ideas that might be out there. We wanted to think unconstrained by preconceptions about how medical support should be handled. Good ideas often are born from past experience, but we wanted to understand how they might apply to the future, without being limited by narrow assumptions. Our methodology for getting at the issues was the four-step process shown above.

During the first step of our process, we wanted to understand the background—the goals of both warfighters and medical. In the second step, we wanted to know what people thought were the underlying characteristics of the battlefields of the future. In step 3, we wanted our participants to articulate possibilities, or ways in which we might move forward to meet the challenges of these future battlefields. The final step was for our study team to synthesize these possibilities, sets of possibilities, and frictions inherent in these possibilities into areas that need a closer look as we move to the future.

In practice, the information did not always flow to us as neatly as the picture might indicate. Some participants wanted to immediately discuss their issues, whereas others wanted to spend much more time on background. But most had many insightful thoughts on the battlefield of the future and possibilities for combat casualty care on those battlefields. Throughout the process, we would have liked more time and follow-up visits with the participants to get at the issues in more detail.



## Background

*What are the goals of warfighters and medical?*

### Warfighters (OMFTS)

- Focus on operational objective
- Achieve vital objectives rapidly and decisively
- Control and dominate battlespace
- Generate overwhelming operational tempo
- Exploit gaps, weaknesses, and opportunities

### Medical

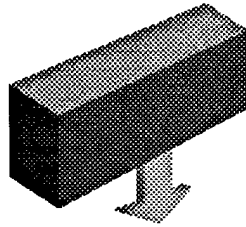
- Allow warfighters to focus on mission
- Provide care to casualties quickly
- Provide quality care to casualties

We now discuss our four steps one by one, starting with background.

The bottom line for the warfighters is to impose their will on the enemy. The means to that end under the OMFTS concept is in applying the principles of maneuver warfare to a maritime campaign. The OMFTS concept is different from traditional amphibious operations of the past in that there is no buildup of forces at a beach landing site—the LCAC, AAV, V-22, and other assets of the future will allow the warfighter to focus on operational objectives without such a stop and achieve them rapidly. The warfighters will operate with such force and at a pace that allows them to dictate the terms of the conflict. The idea is to act decisively, at multiple locations if called for, keeping the enemy reactive and ineffective by applying strengths to enemy weaknesses.

The bottom line for medical is to do its job of saving lives. Doing so should allow the warfighters to focus on their objective. This focus is especially important in the fast-paced action envisioned under the OMFTS concept. Medical personnel want to provide care to casualties quickly because of the markedly increased probability of living when a casualty receives certain care before the “golden hour” ticks away. They also want to provide the highest possible quality of care in any situation. Of course, a specific casualty may have only “golden minutes,” and medical personnel continually strive to push the limits of training and technology in applying care of a high enough quality to save the life of the casualty.





## Characteristics

*What might the battlefields of the future look like?*

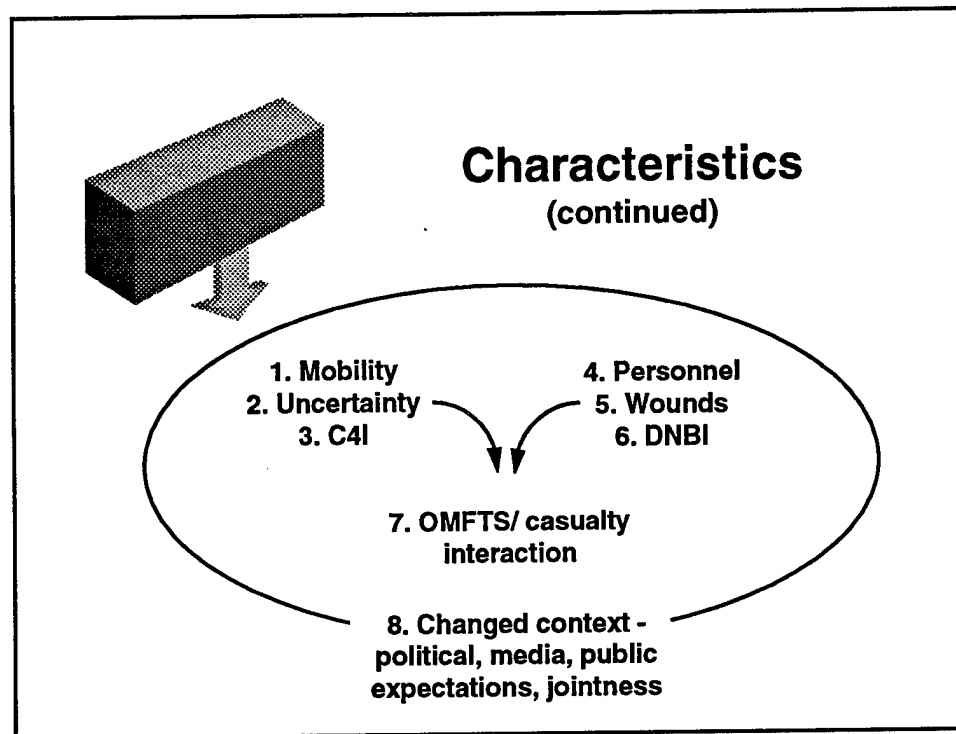
**The answers fell into several categories:**

- 1. Highly dispersed, mobile, flexible forces**
- 2. Smaller, more independent units, greater uncertainty**
- 3. Enhanced C4I requirements and capabilities**
- 4. Civilian and enemy injuries as well as ours, women in combat**
- 5. CBR, mine, laser, sound, as well as traditional weapons in use**
- 6. Preventive medicine important - austere environments**

What might the battlefield of the future look like? We grouped the many responses into several categories.

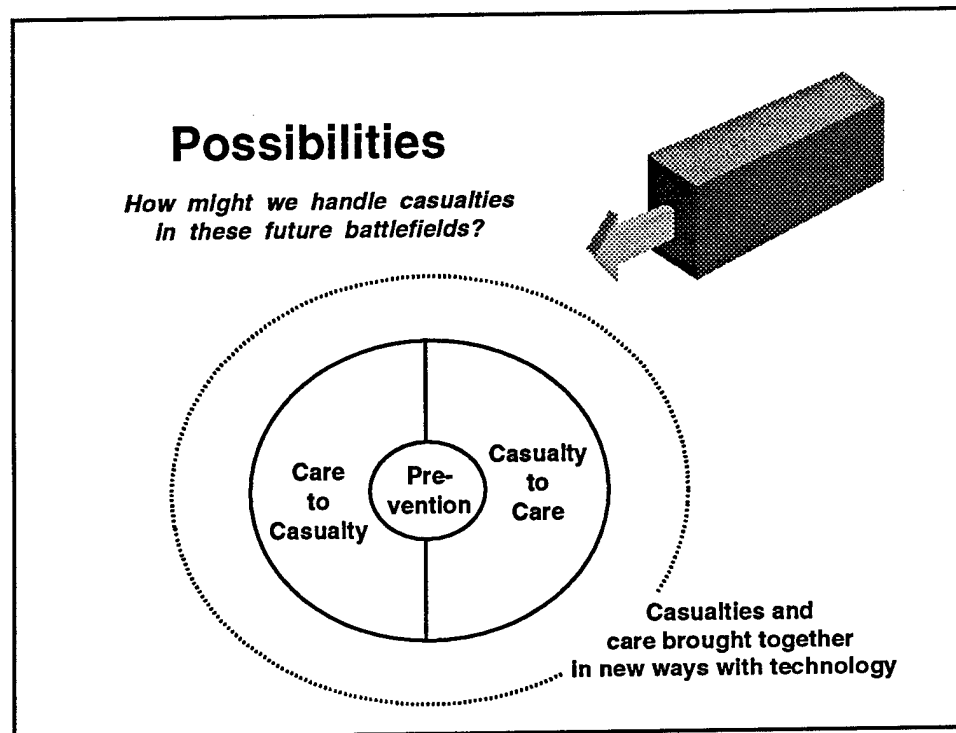
The characteristics in the first three categories stem mostly from our focus on OMFTS. First, the troops will be highly dispersed, and our side will have no vital areas ashore. The force will be extremely mobile and flexible to changing conditions. Engagements will be short and sometimes violent. Second, units will be smaller and operate more independently, making decisions on the spot as they react to the situation at hand. The key characteristic here is uncertainty, starting with uncertainty as to geographic location all the way through to what might happen at any given time and place while carrying out the mission. Third, the future will bring greater command, control, communications, computer, and intelligence capabilities, but the requirement for C4I in the OMFTS environment will also be greater.

The characteristics in categories 4 through 6 stem from changes expected as we move to the future—whether we are fighting under the OMFTS concept or not. First, we might expect to see more civilian casualties, especially when fighting takes place in urban environments. Also, more women in combat will change the casualty profile in the future. Second, the wounds will be different and include chemical and biological injuries. We will also see a real mix of wounds due to futuristic weapons, such as lasers, as well as wounds due to traditional or even primitive weapons. Third, disease and non-battle injuries (DNBIs) will be extremely important to deal with as we fight in assorted austere environments.



Characteristics 1 through 3 summarize our participants' thoughts on the impact of OMFTS on the battlefield. Characteristics 4 through 6 summarize generic changes we should expect to see in casualties as the world changes. When these two sets of characteristics merge, we see a seventh characteristic. Our participants predicted a battlefield that will present what might best be described as a problematic array of casualties. The casualties might be mixed with the enemy in highly dispersed pockets. The size of these pockets may be most likely one or two, but in certain cases a multitude (including civilians and the enemy) could be found due to weapons of mass destruction. The mix of injuries across the battlefield would necessitate readiness to provide casualty care for a large variety of injuries not typical of past conflicts. On top of all these variables, the uncertainty inherent in this mix may cause delays in appropriate decision-making regarding casualty management.

Surrounding all of these characteristics is the changing context in which combat casualty management will take place. First of all, the information age is here—communication at all levels is fast and furious. We have already seen some of the effects of a large and visual media presence in the Gulf War. The American public will have an increasingly direct effect on the decisions made by political leaders. They will also have increasing expectations for casualty care just as they do for health care in general. We may also be operating in a context where the enemy observes no rules or has no internal restraints regarding actions ranging from the use of weapons of mass destruction to targeting a hospital. Finally, and perhaps with the most implications for combat casualty management, we are moving to a time when operations will be more joint in nature and more will be combined.



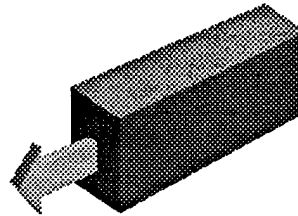
How might we handle casualties in these future battlefields? We fielded literally hundreds of responses to this question. The spectrum of ideas ranged from very futuristic to very traditional, as well as from very specific to very general.

During our information collection, many people we talked with spoke of the world of combat casualty management as a dichotomy—either you take the casualty to care or you bring care to the casualty. They described the basic tradeoff between the two. When you bring more care to the casualty, you have more medical personnel, more training requirements, more equipment, etc. When you take the casualty to care, i.e., evacuate, it takes time. Put another way, the pull is between the depth and breadth of care available on site versus the time elapsed before you can provide the needed care off site.

People also suggested possibilities for the future in the area of prevention, which is at the core of the combat casualty care world. If effective prevention measures are applied for both infectious disease and chemical and biological injuries, then precious resources are freed for other combat casualty care.

Finally, technology is expanding the world of possibilities for combat casualty care. Care and the casualty can be brought together in new ways through new technology, such as telemedicine.

## **Possibilities** (continued)



**The many ideas offered fell into requirements domains:**

- **Doctrine**
- **Organization**
- **Training**
- **Equipment/support**

The previous slide describes our synthesis of possibilities in terms of the actions involved in providing care on the battlefield. To help us continue to sort out the issues, we also broke the possibilities out into domains of what the military does in preparing to provide the care.

Doctrine is the set of fundamental principles that guide the employment of forces. Many of the suggestions in this area involved the fundamental pull between evacuation and on-site care. In different ways, both generally and specifically, the possibilities in this group implied a need to rethink the echelons-of-care system.

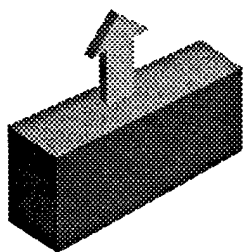
The organization of the force is what goes into the forces and how they are made up. Of course, reorganization of medical units is ongoing, a current example being the reorganization of the medical battalion. Possibilities for the future included many ideas revolving around the concept of smaller modular units that could be pieced together.

Most of the ideas on changing the training of personnel were general—more training for corpsmen, for example. Possibilities included the full range of personnel from increased medical training for infantry to increased field training for medical officers. One theme that was consistent was the need to train as we fight, working with field equipment and in realistic situations on a regular basis.

There were many possibilities in the broad area of equipment, supplies, facilities, and support. They broke down into the subcategories of logistics, medevac, communications (including information systems and decision support), medical diagnostic and treatment, prevention, and ship/facility design.

## Issues

*What areas should be  
looked at as we move to  
the future?*



- System of care
- Evacuation
- Communications
- Technologies
- Deployable platforms
- Casualty-site care
- Prevention
- CBR casualties
- Logistics
- Interaction

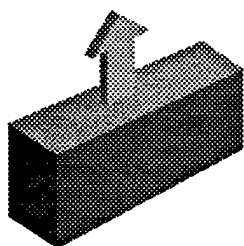
Our study objective was to identify issues that need to be looked at as we move to the future. We took the information that we collected on the characteristics of future battlefields and the resulting possibilities for managing combat casualties on these battlefields and synthesized the information into the list of 10 broad issues on this slide.

The first is the overarching issue of changing the system of care as we move to the future in an OMFTS type of environment. The echelons-of-care system seems appropriate for the old linear way of fighting, but in the future we need to rethink the system because of the new casualty profile. We need to go from the medical-centered and linear echelons-of-care system to a casualty-centered, network-oriented system, which we like to refer to as a **"care of the echelons"** system.

Of course, this new system might include components of the old. And certainly the tradeoffs between taking the casualty to care or bringing care to the casualty must be studied. Among the issues we identified, evacuation, communications, technologies, and deployable platforms are all closely tied to taking the casualty to care. And casualty-site care, prevention, CBR (chemical, biological, and radiological) casualties, and logistics are linked closely with bringing care to the casualty. But we found through our many discussions that there is a great deal of overlap between all of these issues. A common thread running throughout was the issue of interaction and the resulting understanding between the warfighting and medical communities, which is essential to answering all of the questions as we move to the future.

## Issues

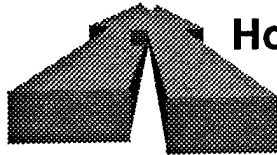
*What areas should be  
looked at as we move to  
the future?*



- System of care
- Evacuation
- Communications
- Technologies
- Deployable platforms
- Casualty-site care
- Prevention
- CBR casualties
- Logistics
- Interaction

continued...

Our task was to not to come up with the answers, but to come up with the questions that must be answered in the area of combat casualty management in the future. Thus, we title each of the 10 subsequent slides with a question. We also give a bottom line—what answering the question would do for the decision-maker. In between, we discuss some specifics, both specific sub-issues within these broad issue areas and specific ways in which you might get at the answers to the questions.



## How should the combat care system be defined?

- Focus on need for speed and dispersion of care in future combat
- Develop specific alternatives to echelons-of-care concept
- Consider doctrine, organization, roles of staff, platforms, training, communications, etc.

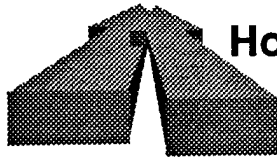
*Answer would...*

**Provide clear options for medical care in future combat**

As a consequence of OMFTS, casualties will likely be more dispersed, possibly in groups of one or two, and interspersed with armed enemy. Also, our Marine Corps and Navy assets will be moving more quickly and unpredictably. These characteristics of OMFTS make it more difficult and dangerous to **locate, protect, treat, and transfer casualties**. There will be a need for more speed and dispersion of care.

Because future combat environments might be so different, we were often told that major parts of the system of echelons of care need to be revamped. But different respondents had different ideas about how the system should be changed. For example, some told us that the battalion aid stations might be inappropriate in many cases. Others felt that the mobility of health service support ashore must be raised to the level of the warfighters. Some thought that Echelon II should be eliminated—moving some capabilities forward and some back. Respondents also said that there should be mobile medical squads/platoons with organic transportation assets, designated Marine Corps medical evacuation units, and more medically capable amphibious ships.

Because there is agreement that the system needs to change, but no consensus about the specific details, the Navy should rethink the entire doctrine, organization, and roles of medical in future combat. The goal of efforts in this area would be to provide clear, system-wide options for providing medical care in combat.



## How should combat casualties be evacuated?

- Focus on Marine Corps, Navy, and joint needs in future environments
- Gather data on prospective assets
- Quantify benefits and costs of options

*Answer would...*

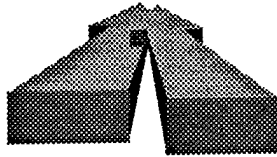
**Identify options so that medical can anticipate and influence future casualty transport**

Maneuver warfare will require evacuation platforms that have enhanced ability to locate casualties and protect themselves. Because of the larger distances involved in OMFTS, these evacuation platforms will also need to be faster and have longer range than those used currently. For example, the CH-46's range is considerably less than what medical might routinely need under OMFTS.

Further study of evacuation platforms should consider organic Navy/Marine Corps alternatives, such as a faster-to-implement Marine Corps Expeditionary Shelter System (MCESS) for LCACs (to be used on both water and land), improved ground ambulances, and "care in the air" enhancements to organic Marine Corps and Navy helicopters. Non-organic assets, such as the Army's model Q Blackhawks, should also be considered.

Data could be gathered on currently projected and prospective new technologies, allowing the benefits and costs of each option to be quantified. Ways should be considered to make use of future logistics assets for casualty transportation, such as V-22s and AAVs. The objective would be to help medical anticipate and influence future casualty transport.





## What are medical communication and information needs?

- Consider current and prospective communication and information system technologies of line
- Focus on greatest needs for communication and awareness
- Quantify contributions and costs of alternatives

*Answer would...*

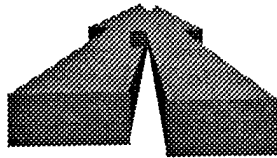
**Allow medical to better focus development of and exploit new communication and information technologies**

The distances and speeds of movement under OMFTS will make it more difficult to communicate for medical and line purposes. But the communications assets available will be more powerful than those that we now have.

Without a definitive front line, casualties may not be as concentrated as before. Instead, we expect to find casualties in a larger number of more highly dispersed locations. These characteristics will make it more difficult to do medical regulation, because there will be a larger number of pickup points to coordinate for the regulator. So the issue of communications should not be considered separately from information technologies that might help with the added complexity of regulating.

Further study of this issue should focus on clearly laying out the current and future line capabilities for communications, comparing those with the current medical regulating nets. This comparison could have near-term benefits to improving medical regulating. Continued work should also focus on describing the newer communications technologies that medical envisions as requirements and that the line envisions for supporting OMFTS. Any analyses should consider backup systems and procedures for the inevitable situations when primary systems fail.

The objective here would be to help medical anticipate, focus the development of, and exploit new communication and information technologies.



## What role should new technologies play?

- Focus on constraints and requirements in future operational environments
- Collect data on options and capabilities
- Quantify contributions and costs
- Most mentioned example is telemedicine

*Answer would...*

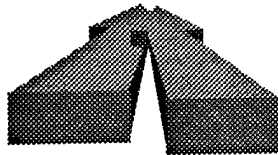
**Help medical focus development of and exploit technology in appropriate ways**

Technology is a broader field than communications and information technologies. There needs to be a bottom-up look of technology's role in future medical environments, taking into consideration the needs, not just what is already available.

Future technologies include a variety of possibilities. Under the label "telemedicine," these include teleradiology, telesurgery, televideo consults to doctors or corpsmen in the field, and a variety of administrative assistant technologies for identifying and locating casualties. Telemedicine also includes technologies for recording and saving information on casualties' medical histories, units, and treatments.

We heard from some of our participants that there are difficulties with telemedicine. For instance, corpsmen may find it more confusing than helpful to receive instructions through an earphone. Alternatives recommended by some participants were to provide infantrymen and corpsmen with enhanced diagnostic and treatment equipment. This equipment should be portable and durable. Technological advances should not supplant training and upkeep of basic lifesaving capabilities for the inevitable situations when primary systems fail.

Because of the potentials—both positive and negative—of new technologies, analyses of the appropriate and inappropriate uses of new technologies are needed.



## What types of deployable medical platforms are needed?

- Collect information on options and capabilities
- Understand constraints and requirements
- Quantify contributions and costs under various scenarios
- Most mentioned topic is the role of the hospital ship

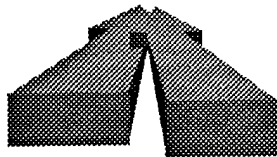
*Answer would...*

**Provide medical platform alternatives to employ in the future**

As we said before, there was a sense that the new combat environment under OMFTS would be very different from what we have today. Therefore, deployable medical platforms need to be reassessed. Do they need to be redesigned, to have different capabilities than we have at present? Are the hospital ships too labor intensive to be an economically feasible platform? Should we make a new hospital ship that is fast enough to keep up with the line ships? And doesn't the Geneva Convention requirement that 10 days' notice be given before a hospital ship can be used severely limit the usefulness of hospital ships?

These questions need to be answered, but further study, rather than being limited to the hospital ship, should include all medical facilities and their capabilities—the BAS or its replacement, the surgical company or its replacement, the shock platoons, the PCRTS, and the combat zone and communication zone field hospitals.

Clearly, a decision about which platforms are best depends on the type of mission. So any analysis should include some consideration of alternatives, including various OMFTS scenarios, more traditional attrition-based amphibious operations, and Operations Other than War (OOTW).



## What skill mix do we need for casualty-site care?

- Infantry skills
  - self/buddy aid
  - "combat lifesaver"
- Corpsmen skills
- Medical officer skills

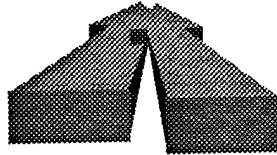
*Answer would...*

**Allow medical more flexibility to support the  
warfighter on a more uncertain battlefield**

As stated before, the high level of mobility and the dispersed nature of the battlefield in the future pose significant challenges to health services. For example, greater distances and the use of smaller, more independent units will stress evacuation capabilities. In addition, the lack of forewarning and the short duration of operations may limit the ability of medical to establish large ground and/or sea platforms to evacuate casualties to. For these reasons, many participants felt that **initial treatment** and other **casualty-site care** would become even more important under future scenarios.

Participants recommended a range of increased skill requirements that might be needed at the casualty site. These recommendations could be represented by a continuous spectrum with the infantryman at one end, moving up to the corpsman, and finally the physician. The ideas included increasing the self/buddy aid skills of all infantrymen, training a select group of the infantry to support the hospital corpsman (such as is done in the Army's "combat lifesaver" program), enhancing corpsman training to reflect that of an independent duty corpsman or a physician assistant, as well as increasing the combat skills of medical officers so they could be moved closer to the scene of conflict. All of these ideas would concentrate more medical capability at the site of injury.

Given this emphasis on casualty-site care, Navy medicine must examine whether the current skill mix of medical personnel will allow the flexibility necessary to support the warfighter on the future battlefield. The medical community, in conjunction with the warfighters, needs to redefine the health care responsibilities of medical and nonmedical personnel, and incorporate any changes into the training regimen.



## What priority should we give to prevention?

- Prevention areas include both infectious disease and chemical and biological injuries
- Identify opportunities for prevention
- Estimate the costs and benefits
  - R&D, training, medicines, equipment, personnel
  - Integrity and morale of troops

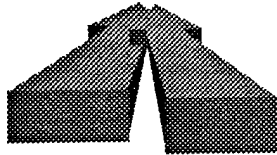
*Answer would...*

**Help establish a needs-based concept for prevention requirements**

Historically, the downfall of many military forces has been the result of disease rather than direct combat with opposing forces. We might expect this trend to continue as we are faced with potential conflicts in more austere environments. This illustrates the need to focus on the prevention of infectious disease. Additionally, many participants from the medical community stated that investments in preventive measures (vaccines, detection methods, intelligence, and training) are the best way to deal with the growing threat of chemical and biological warfare.

Often participants suggested that prevention of infectious disease and chemical and biological injuries was not given the appropriate level of priority in the minds and budgets of the warfighting community. Some felt that military forces succumb to infectious disease due to the failure of commanding officers to integrate basic sanitation and medical prevention procedures. They believe that bringing prevention to the forefront of the commanders' minds would provide the most "bang for the buck" in ensuring the integrity of the forces. Other recommendations included (a) rapid diagnosis capabilities that could be used far "forward" to detect and combat the use of biological weapons and (b) an automated system to track illness patterns to detect potential threats before they become extensive and force degrading.

The Navy and Marine Corps should examine the costs and benefits associated with prevention to determine the appropriate level of attention (doctrinally and monetarily) to give this effort. Also, the requests of the preventive medicine community should be considered when developing new information and equipment technologies.



## How do we manage CBR threat?

- Identify advances in treatment of and training initiatives involving chemical, biological, and radiological injuries
- Collect information on options for decontamination
- Reexamine priority of CBR (training, preparation, etc.)

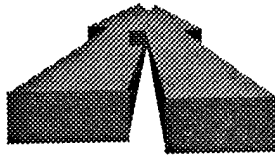
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**Develop range of procedures for  
dealing with a serious future threat**

Although we discussed the chemical and biological threat in the prevention slide, we felt that CBR was brought up so often throughout the study that it deserved additional attention.

Some of the questions regarding CBR that could be addressed are as follows: How do we deal with decontamination, and should that be the responsibility of medical? What is the status of detection capabilities, and how do we put that information to use? Can we train infantrymen to carry and administer their own vaccines/treatments when necessary? How can we best disseminate information and train to combat the morale effects of CBR on the medical community and the troops?

As with prevention, there are many questions to answer, but perhaps the most overarching is determining the appropriate level of priority that should be given to preparing for the CBR threat.



## How do we logistically support the new system of care?

- Develop reconfigured AMALs to support new system and allow for maximum flexibility
- Explore additional commercial options
- Understand developments being made in other functional CSS areas

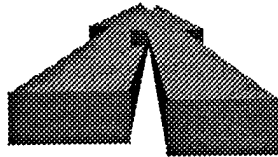
*Answer would...*

**Allow medical to tap full capabilities inherent in logistic advancements**

The logistic challenges of OMFTS are overwhelming. This creates additional stress on the medical support system.

One of the priorities for medical logistics will be to reduce the weight of class VIII supplies. Navy medicine needs to reevaluate the current Authorized Medical Allowance List (AMAL) configurations with this emphasis. Many suggestions were made in reference to supplying health services with 3 days' worth of class VIII supplies and small push or pull modules rather than the 30 (or 15) days of supplies that are currently packed into AMALs. Other recommendations included breaking AMALs down into small modules rather than one large lab or sick call block. This would help not only to lighten class VIII supplies but to make the resupply more responsive to the particular needs of the requesting physician or corpsman.

Several studies and initiatives are under way within the logistics community that address these types of questions, as well as efforts to reduce or control the costs associated with buying, maintaining, managing, and disposing of class VIII supplies. What we found to be one of the biggest problems is the lack of communication between the players involved in efforts being undertaken and the advancements being made within logistics. The Navy/Marine Corps team could benefit from a thorough survey of these efforts.



## How can the interaction of warfighters and medical be optimized?

- Warfighter expectations and perspective
- Asset usage in transfer and communications
- Medical support of OOTW
- Input into processes for change

*Answer would...*

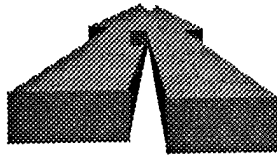
**Help to clarify and integrate ideas and expectations of medical and warfighters**

A theme that ran throughout the project was the need for more effective interaction between the warfighters and medical. One of the motivations for this project was to bring medical's future vision in line with the warfighters, so that the two communities could move together into the future.

Navy medicine must understand the expectations and the requirements of the warfighter. While we had the opportunity to speak with some warfighters in the course of this project, we recommend a more in-depth look at the warfighter's view of the future battlefield and the role of combat casualty management. In addition, many of the participants were eager to discuss humanitarian operations and, more generally, OOTW. While that was not a focus of this project, the need to clarify the role of medicine in these operations is imperative to the process of rebuilding or adapting the current system. We heard many times that whatever system we end up with, it must be flexible. It must have the ability to go from the simplest support to the most complex (an MRC with hundreds to thousands of casualties). To meet this criterion, Navy medicine must have a clear understanding of the support that Marines expect and require for all missions of the Corps (peacetime, forward deployment, regional conflict, OOTW, etc.).

In turn, the warfighter and the other support communities must strive to work with and understand the needs and capabilities of the medical community. Many times we heard that medicine felt they had to constantly educate the line. The low priority of preventive medicine





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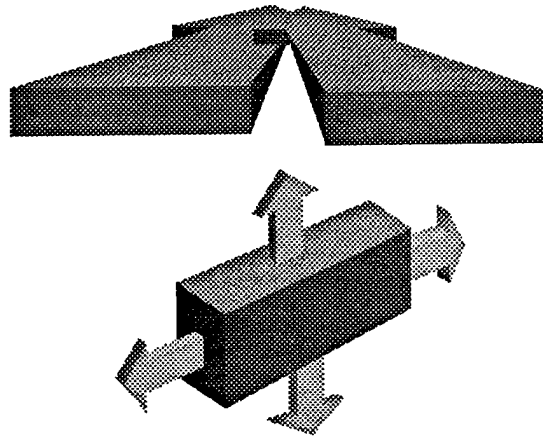
*Answer would...*

**Help to clarify and integrate ideas and expectations of medical and warfighters**

continued...

and field sanitation procedures continues to degrade the effectiveness of the troops. Medical must continuously fight for training dollars and is often not included as a major player in field exercises. As an additional example, the Marine Corps Combat Readiness Evaluation System (MCCRES), which is used as a battalion level measure of combat readiness, contains only a very small fraction of medical readiness items. As a result, medical can be given little emphasis and still the battalion can be rated combat ready.

The nature of the Marine Corps has always been to achieve the maximum amount of multiple use for any asset. Under OMFTS, this concept becomes even more valuable. As we move into the future, we must look for commonality in the communications, technology, transportation, and logistic support systems required by the warfighters, medicine, and the other support services. But we must also think of the process, the development of ideas, and the implementation of those ideas, as assets to be shared among all of these communities. Therefore, the Navy/Marine Corps team needs to ask if there are any doctrinal or organizational changes that could be made to encourage the integration of ideas and expectations of all communities throughout the combat development process. The goal would be for all players to contribute and work together within the system to get things done.



## **Combat Casualty Management Issues in Future Operational Environments**

In keeping with the theme of rethinking the system of combat casualty care from the ground up, we read this slide starting from the bottom. The objective of this quick-response project was to identify combat casualty management issues that need to be addressed in operational environments of the future. We proceeded to tap a variety of sources in a four-step process. First we learned background information in both the warfighting and medical arenas. Then we met with many people in the field of military medicine to understand their thinking regarding the characteristics of future battlefields and the possibilities for combat casualty care on those future battlefields. Finally, we synthesized the information we collected into 10 broad issue areas that warfighters and medical need to take on together as they move to the future.

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